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**Notes:**

1. Untranslatable words are replaced with asterisks (\*).
2. Texts in the figures are not translated and shown as it is.

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**CLAIM + DETAILED DESCRIPTION**

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**[Claim(s)]**

[Claim 1]A packaging bag for microwave ovens whose inner side outline of an environmental seal part of a packaging bag which stores foodstuffs and is cooked by heating with a microwave oven as it is is characterized by being a curve in a corner and a back seal section at least of said packaging bag.

[Claim 2]The packaging bag for microwave ovens according to claim 1, wherein a vent is formed by tearing a piece of projection provided in an environmental seal part of said packaging bag.

[Claim 3]Claim 1 having weak-pasted up a field of an arc shape divided by straight line which connects the both ends to said inner side outline in said back seal section so that exfoliation is possible, or a packaging bag for microwave ovens given in either of Claim 2.

[Claim 4]The packaging bag for microwave ovens according to any one of claims 1 to 3, wherein said piece of projection tears and a direction and a going-straight cutting direction of a film which is used for said packaging bag and which has going-straight cut nature in one way at least are in agreement.

[Claim 5]The packaging bag for microwave ovens according to any one of claims 1 to 3, wherein said piece of projection tears, it weakens along a line and line processing is given.

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**[Detailed Description of the Invention]****[0001]**

[Field of the Invention]This invention relates to the packaging bag for microwave ovens which cooks by heating within a packaging bag.

**[0002]**

[Description of the Prior Art]The needs which carry out a packaging bag instead of cookware, cook it by heating with a microwave oven the whole packaging bag, and move and replace it with remaining as it is or tableware and with which a table is presented are increasing instead of picking out precooked frozen food, chilled food, etc. from a packaging bag, moving and replacing with tableware, and only cooking by heating with a microwave oven. This is because there are foodstuffs eaten more delicious [ it / to have moved, changed and dished up, to have been able to save the time and effort of tableware washing, and to have made internal pressure into height depending on foodstuffs, and to have carried out high temperature heating within the packaging bag, or to steam for a while with heating steam ] if a packaging bag is carried

out instead of tableware. That such needs should be satisfied, a packing plan must be made for every menu of foodstuffs so that the optimal cooking may be completed in a packaging bag. However, in order that almost all the packaging bag for microwave ovens may only pack contents and may prevent a burst in a microwave oven just before heating, the vent which opens some packaging bags or misses heating steam automatically is formed. About this latter, for example, there are examples, such as JP,S63-138975,A shown in drawing 4 (a), JP,H4-40005,A shown in drawing 4 (b), and JP,H8-80979,A shown in drawing 4 (c), and a vent carries out the opening also of any to a side seal part. In the case of drawing 4 (b), it opens from the tip part of the side seal which stress concentrates. The shape of a basic form of the packaging bag generally used has overwhelmingly many pillow packing bags and method seal bags of four, and result shape has many angle-like things.

[0003]

[Problem to be solved by the invention]However, in a packaging bag which is proposed by each above-mentioned item gazette, since there is no internal pressure-proof nature structurally, the problem of being unsuitable is among cookings which steam high temperature cooking by heating or contents foodstuffs of contents for a while in the hot state. Since the vent is provided in the side seal part, in the case of a solid, a problem is not, but when it carries out [ direct packing ] of the watery prepared food etc. without using a tray, the problem that sap blows off from a vent together with heating steam, and soils the inside of a microwave oven occurs. There is a problem burned or discolored in the portion which microwave, such as a corner of foodstuffs and unfixed type foodstuffs with the viscosity which remains in the corner of a packaging bag easily, tends to concentrate. This invention was made in view of the above-mentioned problem, contents foodstuffs do not burn easily, and it does not have jet of sap, and aims at offer of the packaging bag for microwave ovens in which high temperature heating or \*\*\*\* is continued while it has been high pressure.

[0004]

[Means for solving problem][ this invention made in order to solve said technical problem ] [ the inner side outline of the environmental seal part of the packaging bag which stores foodstuffs and is cooked by heating with a microwave oven as it is ] A vent is formed by tearing the piece of projection of said packaging bag which considered it as the curve in the corner and the back seal section at least, and was provided in the environmental seal part of said packaging bag, The field of the arc shape divided by the straight line which connects the both ends to said inner side outline in said back seal section is weak-pasted up so that exfoliation is possible, It constitutes from what said piece of projection tears, a direction and the going-straight cutting direction of the film which has going-straight cut nature in one way at least used for said packaging bag are coincided, said piece of projection tears, it weakens along a line, and line processing is given for.

[0005]

[Mode for carrying out the invention]This invention is explained in more detail using Drawings. Drawing 1 is an explanatory view at the time of using the method seal bag of four of the packaging bag for microwave ovens by this invention. Drawing 1 (a) is a top view of the method seal bag 10-1 of four by this invention. As shown in drawing 1 (a), as for the method seal bag 10-1 of four by this invention, in four corners of a packaging bag, the inner side outline of the side seal part 2 is presenting the curve at least. And the lamination film 1 of two upper and lower sides which constitute this method seal bag of four is firmly pasted up in this side seal part 2 (a slash shows). The outline with such the whole near a circle is easily obtained by

changing the shape of a heat-sealing bar. The piece 3 of projection tears to one side which met in the direction of a flow of the original fabric film shown by a big arrow, and is connected with it via the line 6, and in order [ this ] to tear and to form the vent 4 ranging over the line 6, comb-like heat sealing is made. According to the microwave oven heating conditions of contents foodstuffs, it can set suitably, and the thickness of the vent 5, a number, a pitch, etc. are \*\*\*\*\*. The piece 3 of projection tears the attachment position of the piece 3 of projection, and the vent 4, as long as it is a possible position, it may be among four sides anywhere, but it is preferred to be provided in the neighborhood which met in the direction of a flow of an original fabric film. The piece 3 of projection may be formed in two or more places. A content is filled up into a central circular part with the state where the method of one of the method seal of four is opening, the seal of the restoration side is carried out to the last, and as the slash of drawing 1 shows, the seal of the methods of four is carried out completely. It has strong-pasted up and this portion cannot be exfoliated. Then, if the piece 3 of projection is torn and it tears from the notch 6 along the line 5 before heating this method seal bag 10-1 of four with a microwave oven, the vent 4 which misses heating steam outside can be formed. By providing this, the method seal bag 10-1 of four can prevent exploding within a microwave oven, and can control internal pressure and cooking temperature according to the opening gross area (refer to drawing 1 (b)). What is necessary is just to tear apart the packaging bag 10-1 along the perforated line 7 from the notch 6, in order to take out the content which cooking by heating finished with the optimal conditions. The film which has going-straight cut nature in one way is used for the base material layer of an original fabric at least, and generally the going-straight cutting direction is the direction of an arrow, and it is [ it tears and ] easy to tear the line 6 and the perforated line 7 in the direction of an arrow. Instead of the film which has going-straight cut nature in one way at least, it may tear and the half cut line from the surface by laser processing etc. may be beforehand formed in the position of the line 5 and the perforated line 7. When using at least the film which has going-straight cut nature for one way, a countless scar is provided in either of right-and-left both the neighborhoods in drawing 1 (a), and it may be made to be torn from a favorite position instead of the notch 6.

[0006]Drawing 1 (b) is a side view in the state where internal pressure increased. Since the stowage shape of the method seal bag 10-1 of four approaches spherically, unlike the method seal bag of four with the conventional angle, the covering area of a content becomes small, the internal stress by internal pressure comes to be applied equally [ abbreviation ] to an inner wall, resistance to pressure improves as a result, and high temperature cooking of a content is attained by only the part. By having lost the corner, heating is also equalized and generating of the burn by excessive heating and a discoloration portion decreases extremely.

[0007]Since there is no vent 4 of this method seal bag 10-1 of four in a high position as shown in drawing 1 (b), there is no jet prevention effect of sap, but corn and a Chinese meat dumpling with little sap, a steamed meat dumpling, etc. can be suitably processed as object foodstuffs. The direction which is depended on the foodstuffs which do not want to miss moisture of a content, and high-fever steam and which steamed and lengthened time should just choose the thickness of the vent 4, length, and a number suitably with the foodstuffs etc. which are eaten with good appetite. If the gross area of this vent 4 becomes large with the natural thing, the conditions same without a packaging bag as the case where it moves, replaces with and heats on tableware will be approached.

[0008]Drawing 2 is an explanatory view at the time of using a pillow packing bag for the packaging bag for

microwave ovens by this invention. It is used for back seal section S, the pillow packing bag 10-2 by this invention carrying out the side seal of the both ends of the tube-like object \*\*\*\*\* (ed) by the back seal, and turning up. Drawing 2 (a) is a top view of the pillow packing bag 10-2, and back seal section S is put to sleep in the direction of either. As shown in drawing 2 (a), modification heat sealing was carried out and the pillow packing bag 10-2 by this invention is strong-pasted up, as a shadow area shows, so that the inner side outline of the side seal part 2 in four corners of a packaging bag may turn into a curve at least. Therefore, when internal pressure increases and interior space expands, central restoration space is expanded, but in the case of the pillow packing bag 10-2 by this this invention, the means brought close still more nearly spherically than the method seal bag 10-1 of four by aforementioned this invention is given. It is in the composition of back seal section S, and explains it in the following column. moreover -- tear to back seal section S formed along the direction of a flow of the original fabric film shown by an arrow, and the piece 3 of projection is connected via the line 5 -- this -- it tears and the vent 4 is formed by comb-like heat sealing ranging over the line 5. Therefore, before heating with a microwave oven, if it tears, \*\* 3 is torn and it tears from the notch 6 along the line 5, this vent 4 that misses heating steam outside can be formed, and a burst within a microwave oven can be prevented. What is necessary is just to define the number of this vent 4, and a size suitably according to the heating conditions of contents foodstuffs. If cooking by heating finishes, the packaging bag 10-2 can be opened along the perforated line 7, and a content can be taken out. In order to tear and to tear smoothly according to the line 5 and the perforated line 7, what is necessary is to tear as mentioned above and just to coincide a direction and the going-straight cutting direction of the base material layer of an original fabric, and it may be made to form the half cut line from the surface.

[0009]Drawing 2 (b) is a side view at the time of cooking by heating of the pillow packing bag 10-2 by this invention. As shown in drawing 2 (b), back seal section S currently put to sleep rises, and the vent 4 comes to the top part of a packaging bag. Therefore, even if it is a watery content, spouting with heating steam from the vent 4 decreases extremely. In the case of this pillow packing bag, [ back seal section S ] Consisting of a field of an arc shape shown by a dot divided by the straight line L which connects those both ends to the strong bonded part 8 which an inner side outline curves inside and presents the shape of a curve, and its inner side, i.e., an inner side outline, a portion of this arc shape constitutes the weak bonded part 9 weak-pasted up so that exfoliation was possible. If internal pressure increases and this weak bonded part 9 reaches a predetermined level, it is provided in order to begin and exfoliate and to miss heating steam outside from the vent 4. When this weak bonded part 9 exfoliates, interior space approaches still more nearly spherically. The pattern is shown by drawing 2 (b) and a weak adhesion part which exfoliated is shown by 9'. [ therefore the pillow packing bag 10-2 by this invention since a content can be processed where heating steam is accumulated more in an inside by high temperature and high pressure until this weak bonded part 9 exfoliates ] It can contribute to development of new foodstuffs which are eaten still with good appetite by carrying out full cooking not only of the shortening of the whole cooking time but also foodstuffs of a half-cooking state in a pillow packing bag. [ as a means of weak adhesion in the aforementioned weak bonded part 9 ] What is necessary is to carry out the partial coat of the heat-sealing agent of a low melting point to the weak bonded part 9, or just to lower adhesive strength with a squares seal etc. so that strong adhesion may be carried out to the shape of a dotted line which arranges the straight line L top which connects both ends of an outline with a proper size and a pitch and a content may not enter a weak adhesion field. Simultaneously with the strong adhesion part 8, a means of this latter can be

simultaneously heat sealed with the same heat-sealing bar.

[0010]Drawing 3 is an explanatory view at the time of using an independence bag for the packaging bag for microwave ovens by this invention. Although the bottom B of the independence bag 10-3 by this invention is not a surface of a sphere, since it is fabricated in the shape of [ near a surface of a sphere ] boat form, divert the inside shape of the boat form as it is, but. strong-paste up a shoulder with a heat-sealing bar in which an internal outline turns into a curve, and tear on a head and the piece 3 of projection is connected with it via the line 5 -- this -- it tears and comb-like heat sealing is made ranging over the line 5. Therefore, if this piece 3 of projection is torn and it tears along the line 5 before heating with a microwave oven, the vent 4 which misses heating steam outside can be formed in the top, and a burst within a microwave oven can be prevented. After heat-treatment by a microwave oven, if a shoulder is cut off by the perforated line 7, it can open. According to this independence bag 10-3, although it keeps away from a globular form rather than the aforementioned method seal bag 10-1 of four, and the pillow packing bag 10-2, heating is equalized rather than the conventional independence bag, and a burn is not seen, but there is least scattering of sap. In order to tear and to tear smoothly according to the line 5 and the perforated line 7, what is necessary is to tear as mentioned above and just to coincide a direction and the going-straight cutting direction of the base material layer of an original fabric, and it may be made to form the half cut line from the surface. The vent 4 does not necessarily need to be a vertical straight line, as shown in drawing 3. In the case of the independence bag 10-3, what says from the shape of a packaging bag and has viscosity like curry roux is turned to, and it exhibits the function which was excellent when allotting by especially after cooking.

[0011]the rigidity which wants to give the lamination film 1 used for the packaging bag 10 for microwave ovens by this invention to a packaging bag according to the kind of foodstuffs of contents, and barrier property -- what is necessary is to carry out a thrust-proof prickle and just to choose in consideration of packing \*\*\*\*, such as intensity, and the laminated constitution is as follows sequentially from the outside.

-15/DL/PEFON15/DL/PP50-

15/DL/LLDPEF50OPP15/DL/LLDPEOPP15/PP50PET12/DL/ON15/DL/PP50PET12/DL/ON15/DL/LLDPEF

each sign means the following material and a number shows the thickness of each layer by  $\mu\text{m}$ .

ON : extension nylon PP : The unextended polypropylene OPP : Extension polypropylene PET :

Polyethylene terephthalate PEF : Polyethylene film LLDPEF : Straight-chain-shape low density polyethylene

DL : [ the substrate film of the packaging bag for microwave ovens by dry lamination adhesives this

invention ] It is preferred to use at least the film which has going-straight cut nature for one way. As a substrate film which has going-straight cut nature in one way at least, extension processing was carried out and the IDEMITSU PETROCHEMICAL CO. LTD. biaxial extension special nylon film (a brand name, "uni-Athlon") can be used in the direction of 1 axis, or the biaxial direction, for example. This is an environment-friendly barrier property substrate which has the going-straight cut nature outstanding in the direction of a flow, and has easy cleavability, and does not contain chlorine etc., holding practical use intensity peculiar to nylon resin. The foodstuffs which are the targets of the packaging bag for microwave ovens by this invention are large, and precooked [ which carried out boil and retorting besides the precooked frozen food which is only warmed and is eaten ], half-precooked foodstuffs, etc. reach far and wide. when you need oxygen barrier property during preservation, a silicon-oxide deposition layer, an ethylene vinyl alcohol copolymer layer, etc. may be boiled during the above-mentioned laminated constitution, and it may make them intervene

[0012]

[Working example]Specification cooking-by-heating time 6 minutes marketed as precooked frozen food (in the case of 600W), "The ingredient of a donburi dish" of 180 g of net weight is picked out from the usual method seal bag of four, The lamination film which consists of laminated constitution of ON15/DL/LLDPEF50 is used, The diameter of the circular stowage was abbreviated 150mm, and when it moved to the method seal bag 10-1 of four by this invention which formed the vent 5 3 mm in width, and 10 mm in length in 4 and regular intervals and microwave oven heating was performed, it turned out that heating is possible for \*\*\*\* eaten with good appetite in 5 minutes. When the pillow packing bag 10-2 by this invention was used, cooking time was shortened further and became 3.5 minutes. In any case, it swelled in the form near a globular form in the microwave oven, steam from a vent vomited it, and \*\*\*\* was performed smoothly. Even if proper cooking time passed, the burn was not seen at all. On the other hand, where it moved the same "ingredient of the donburi dish" to tableware or it is piled on boiled rice, when heated with the same microwave oven, in order for the best season for eating to have come, 6 minutes was required as specification. From a vent, in the case of the pillow packing bag and the independence bag, scattering accompanying heating steam of sap was attached, and was not seen at all.

[0013]

[Effect of the Invention]Since according to the packaging bag 10 for microwave ovens by this invention a packaging bag swells in the state near a globular form within a microwave oven and requires internal pressure with an equivalent abbreviation for an inner wall, though it is a packaging bag of the same specification compared with the conventional horned packaging bag, high pressure can be borne more. Therefore, since the inside of a packaging bag can be made high temperature heating more, the development means of cooking-by-heating time not only being shortened but new foodstuffs can be provided. since the content is held spherically in near space -- heating -- abbreviated -- it is carried out uniformly and a scorch does not come out. and since jet of heating steam can be stopped by the weak bonded part 9 until it can provide the vent of a suitable inside diameter and a number and passes over a certain fixed internal pressure further, according to contents foodstuffs, it is based on adjustment of cooking time, high temperature heating, or steam -- steaming -- etc. -- it can carry out. Since a vent can be provided in the highest position of a packaging bag, sap cannot spout with heating steam and a microwave oven can be used in the clean state. Only by the packaging bag for microwave ovens by this invention changing seal shape, since it can manufacture, it is not necessary to install a special manufacture device except a seal type and, restoration and a packaging machine may also be used in the conventional state, and new capital investment is unnecessary.

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[Translation done.]